Amendments to the Claims:

This Listing of Claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for adjusting the atmosphere within a substantially sealed chamber containing respiring produce, the respiring produce being maintained within the substantially sealed chamber for a storage time, the chamber having controllable inlet means to permit ambient atmosphere to enter the chamber, and outlet means to permit chamber atmosphere to exit the chamber, the method comprising:

(a) automatically monitoring the oxygen concentration within the chamber;

(b) following detection that the oxygen concentration in the chamber has fallen below a predetermined amount as a result of the consumption of oxygen by the respiring produce, opening the inlet means to admit ambient atmosphere into the chamber so that the amount of oxygen in the chamber increases to maintain the oxygen concentration above a preset oxygen concentration to prolong the storage life of the respiring produce, the present oxygen concentration being greater than zero but less than an oxygen concentration in ambient air; and

(c) without monitoring of carbon dioxide concentration within the chamber, continuously removing the carbon dioxide from the chamber atmosphere substantially at a predetermined carbon dioxide removal rate by using an amount of a carbon dioxide absorbing material in the chamber in fluid communication with the chamber atmosphere, the predetermined carbon dioxide removal rate having been selected such that a non-zero carbon dioxide concentration is maintained within the chamber atmosphere, which does not substantially exceed a predetermined level, in order to maintain the carbon dioxide concentration within a pre-determined desired range so to inhibit deterioration of the respiring produce, wherein the amount of carbon dioxide absorbing material in the chamber maintains the carbon dioxide concentration within the pre-determined range during the storage time.

2. (Previously Cancelled)

3. (Original) A method according to claim 1 wherein said predetermined carbon dioxide removal rate is calculated from a formula derived from a mathematical model of the proportions of the chamber atmosphere subject to the requirement that the oxygen concentration within the chamber be substantially maintained at a predetermined amount.

4. (Previously Cancelled)

5. (Previously Presented) A method according to claim 3 wherein said predetermined carbon dioxide removal rate is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79\, p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21\, p_{CO_2}}$$

where a_{CO_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

6 - 9. (Previously Cancelled)

10. (Previously Presented) A method according to claim 1 wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container being selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

11. (Previously Presented) A method according to claim 3 wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container is selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

12. (Previously Presented) A method according to claim 5 wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container is selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

13 - 24. (Previously Cancelled)

25. (Previously Presented) A method according to claim 1 wherein the inlet means is open for a time that is approximately proportional to the difference between a detected oxygen concentration and an oxygen setpoint.

26. (Original) A method according to claim 25 wherein, if the difference between the detected oxygen concentration and the oxygen setpoint exceeds a predetermined amount, the inlet means remains open until following detection that the oxygen concentration in the chamber has exceeded a predetermined value.

27 - 142. (Previously Cancelled)

143. (Previously Presented) A method for adjusting the atmosphere within a chamber containing respiring produce without monitoring of carbon dioxide concentration within the chamber, the respiring produce being maintained within the chamber for a storage time, the method comprising:

(a) flushing the chamber with a purging gas having a low oxygen concentration or no oxygen;

(b) placing an amount of carbon dioxide absorbing material in the chamber in fluid communication with the chamber so as to absorb the difference between a predicted level of carbon dioxide in the chamber based on the rate of consumption of oxygen by the produce and a desired carbon dioxide level so that a non-zero carbon dioxide concentration within a pre-determined range is maintained in the chamber during the storage time, the non-zero carbon dioxide concentration not substantially exceeding said desired level in order to inhibit deterioration of the respiring produce;

(c) substantially sealing the chamber either before or after step (a);

(d) automatically monitoring oxygen concentration within the chamber;

(e) adjusting the oxygen level in the chamber to a level above a desired oxygen setpoint to prolong the storage life of the respiring produce, the desired oxygen setpoint being greater than zero but less than an oxygen concentration in ambient air;

(f) permitting the oxygen level in the chamber to degrade to about the oxygen setpoint as a consequence of oxygen consumed by the respiring produce being converted to carbon dioxide;

(g) opening an inlet of the chamber to remove chamber atmosphere from the chamber and admit ambient atmosphere into the chamber; and

(h) repeating steps (e), (f) and (g) as required if the oxygen level falls below the oxygen setpoint, to maintain the oxygen level in the region of the oxygen setpoint.

144 - 145. (Previously Cancelled)

146. (Previously Presented) A method according to claim 143 wherein the rate of removal of carbon dioxide from the chamber is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79\, p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21\, p_{CO_2}}$$

where a_{CO_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

147.-152. (Previously Cancelled)

153. (Previously Presented) A method for adjusting the atmosphere within a chamber containing respiring produce, the respiring produce being maintained within the chamber for a storage time, the method comprising:

(a) maintaining the oxygen concentration in the chamber atmosphere substantially at a predetermined oxygen setpoint to prolong the storage life of the respiring produce, the oxygen setpoint being greater than zero but less than an oxygen concentration in ambient air; and

(b) without monitoring of carbon dioxide concentration within the chamber, continuously removing the carbon dioxide from the chamber atmosphere substantially at a predetermined carbon dioxide removal rate with an amount of carbon dioxide absorbing material in the chamber in fluid communication with the chamber atmosphere, the predetermined rate having been selected such that a non-zero carbon dioxide concentration is maintained within the chamber atmosphere, which does not substantially exceed a predetermined amount, thereby to maintain the carbon dioxide concentration within a pre-determined desired range for the storage time in order to inhibit deterioration of the respiring produce, wherein the oxygen concentration in the chamber atmosphere is maintained substantially at the setpoint by (i) automatically monitoring the oxygen concentration in the chamber and following detection that the oxygen concentration has fallen below the setpoint, or below a tolerance about the setpoint (ii) opening an inlet of the chamber to admit into the chamber ambient air so that the amount of oxygen in the chamber increases; and (iii) causing or permitting chamber atmosphere to exit the chamber.

154. (Previously Cancelled)

155. (Previously Presented) A method according to Claim 153, wherein said predetermined carbon dioxide removal rate is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79 p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21 p_{CO_2}}$$

where a_{CO_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

156. (Previously Presented) A method according to Claim 153, wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container being selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

157. (Previously Presented) A method according to Claim 156, wherein said predetermined carbon dioxide removal rate is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79 p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21 p_{CO_2}}$$

where a_{CO_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

158 and 159 (Previously Cancelled)

160. (Previously Presented) A method for adjusting the atmosphere within a chamber containing respiring produce, the method involving automatically monitoring the oxygen concentration within the chamber without monitoring the carbon dioxide concentration within the chamber, the method comprising the steps of maintaining the oxygen concentration in the chamber atmosphere substantially at a predetermined oxygen setpoint to prolong the storage life of the respiring produce, the predetermined oxygen

setpoint being greater than zero but less than an oxygen concentration in ambient air, predicting the carbon dioxide concentration in the chamber that would be expected to result in the absence of any adjustment to the carbon dioxide concentration, and independently adjusting the carbon dioxide concentration in the chamber by determining the difference between the predicted level of carbon dioxide in the chamber and a desired carbon dioxide concentration so that the carbon dioxide concentration in the chamber is maintained at a non-zero equilibrium concentration within a pre-determined range for the storage time, and installing in the chamber one or more containers of hydrated lime of predetermined carbon dioxide transmissibility in fluid communication with the chamber atmosphere whereby carbon dioxide is absorbed into the containers so that the concentration of carbon dioxide in the chamber is maintained at the non-zero equilibrium concentration, in order to inhibit deterioration of the respiring produce.